MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEMS, MILL CREEK 3 PENSTOCK
Mill Creek
Yucaipa vicinity
San Bernardino County
California

HAER No. CA-2272-O

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of Interior
1111 Jackson Street
Oakland, California 94607

HISTORIC AMERICAN ENGINEERING RECORD

MILL CREEK 2 AND 3 HYDROELECTRIC SYSTEMS,
MILL CREEK 3 PENSTOCK

HAER No. CA-2272-O

Location: The Mill Creek 3 Penstock (MC 3 Penstock) is located within Mill Creek Canyon in San Bernardino County, California (0n USGS topographic map Yucaipa, Sections 13; T. 1S., R. 1W.).

Significance: The MC 3 Penstock is a key component in the MC 3 system. It is a pressure pipe (known as the penstock) that connects to the powerhouse. MC 3 is one of the earliest examples of a high-head hydroelectric system within the United States and one of the first commercial three-phase alternating current stations in California. Three-phase alternating later became the industry standard.

Description: The MC 3 Penstock is made of cast iron and fed by the flowline pipes, which are 8,400 feet long which runs generally parallel to the SCE access road and power lines. The flow of the water through the MC 3 Penstock is regulated by an upper penstock valve enclosure. The valve enclosure is connected to a bypass pipe, embedded into the ground near the reservoir. The pipe is also used when the reservoir is drained for maintenance. There is a concrete core wall used as a dam located to the west of the reservoir, surrounded by dirt on either side. The control values for the penstock are located near the powerhouse at the base of the hill.

The processed water flows down a hill through the Penstock (alongside the Penstock to the south for MC 2) towards a shared powerhouse. Flowing down the hill speeds up the water and creates the needed pressure for the powerhouse equipment. The MC 3 Penstock has 24 feet and 26 feet diameter lap riveted pipes. Its static head is 1,905 feet. When it nears the powerhouse, the Penstock branches into two, then four pipelines. The pipes are painted with asphaltum inside and outside to protect against damage.[1] In addition, there are concrete thrust blocks situated to keep the pipes in place and from sliding down the hill.

History: The MC 3 Penstock was constructed as part of the Mill Creek 3 Hydroelectric System. The MC 3 system was constructed between 1899 and 1903 by the Redlands Electric Light and Power Company, later absorbed by Edison Electric Company of Los Angeles in 1901. The MC 3 system is still in operation today and is owned and operated by Southern California Edison. Please see the Historic Context section in the general Historic American Engineering Record for the Mill Creek 2 and 3 Hydroelectric Systems (HAER No. CA-2272) for additional information.

Sources:

Fowler, Frederick Hall. *Hydroelectric Power Systems of California and Their Extensions into Oregon and Nevada, Water-Supply Paper 493*. Washington, D.C.: Government Printing Office, 1923.

[1] George P. Low, "The Generating, Transmission and Distribution Systems of The Edison Electric Company of Los Angeles, Cal.," *The Journal of Electricity, Power and Gas*, vol. XIII, no. 1, January, 1903, 25.

White, David R. M. "Cultural Resource Management Plan for the Southern California Edison Company Mill Creek Hydroelectric Project (FERC Project No. 1934) San Bernardino County, California," June 1993.

Low, George P. "The Generating, Transmission and Distribution Systems of The Edison Electric Company of Los Angeles, Cal.," *The Journal of Electricity, Power and Gas.* vol. XIII, no. 1. January, 1903.

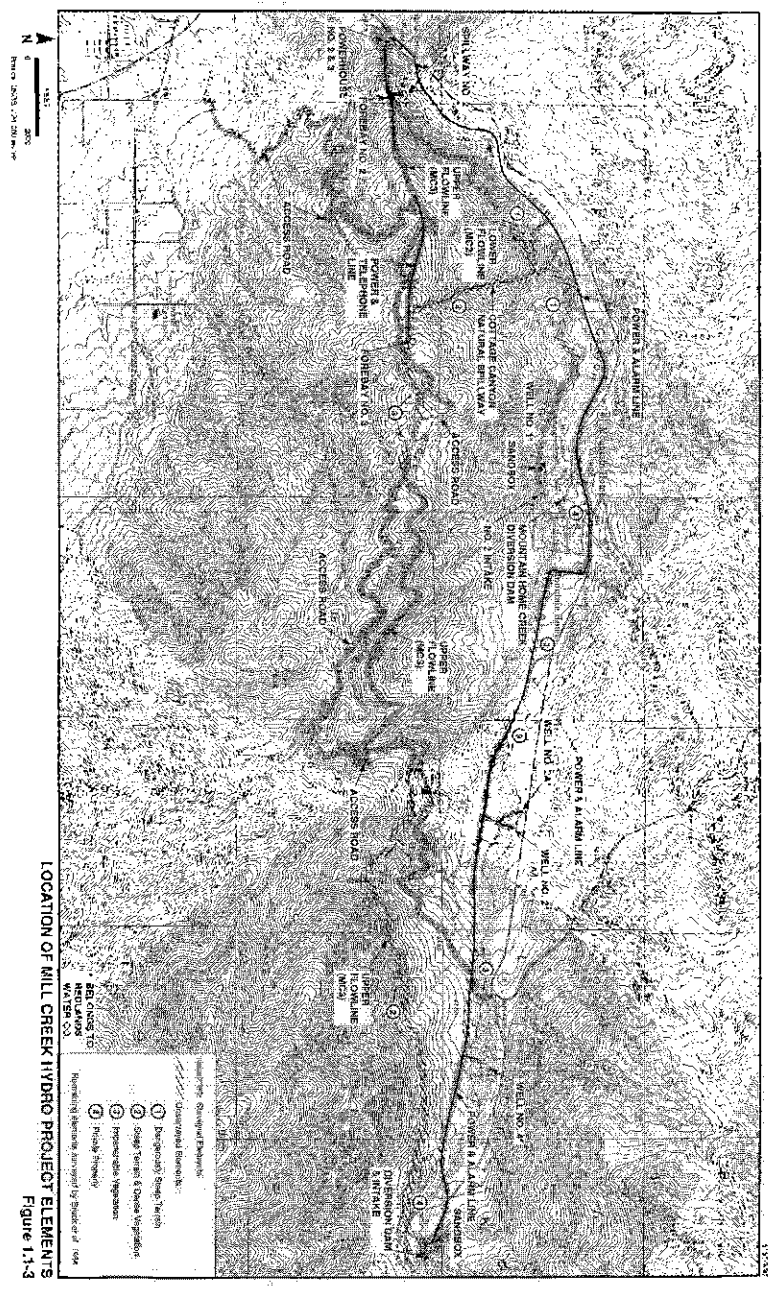
"Means Much to Redlands: Big Light and Power Deal Closed," *Los Angeles Times.* May 25, 1901, 8.

"Redlands Electric Light & Power Co., Edition Electric Co. of Los Angeles, Mill Creek Powerhouses," *National Register of Historic Places Inventory – Nomination Form*, April 30, 1985, item number 7, 10.

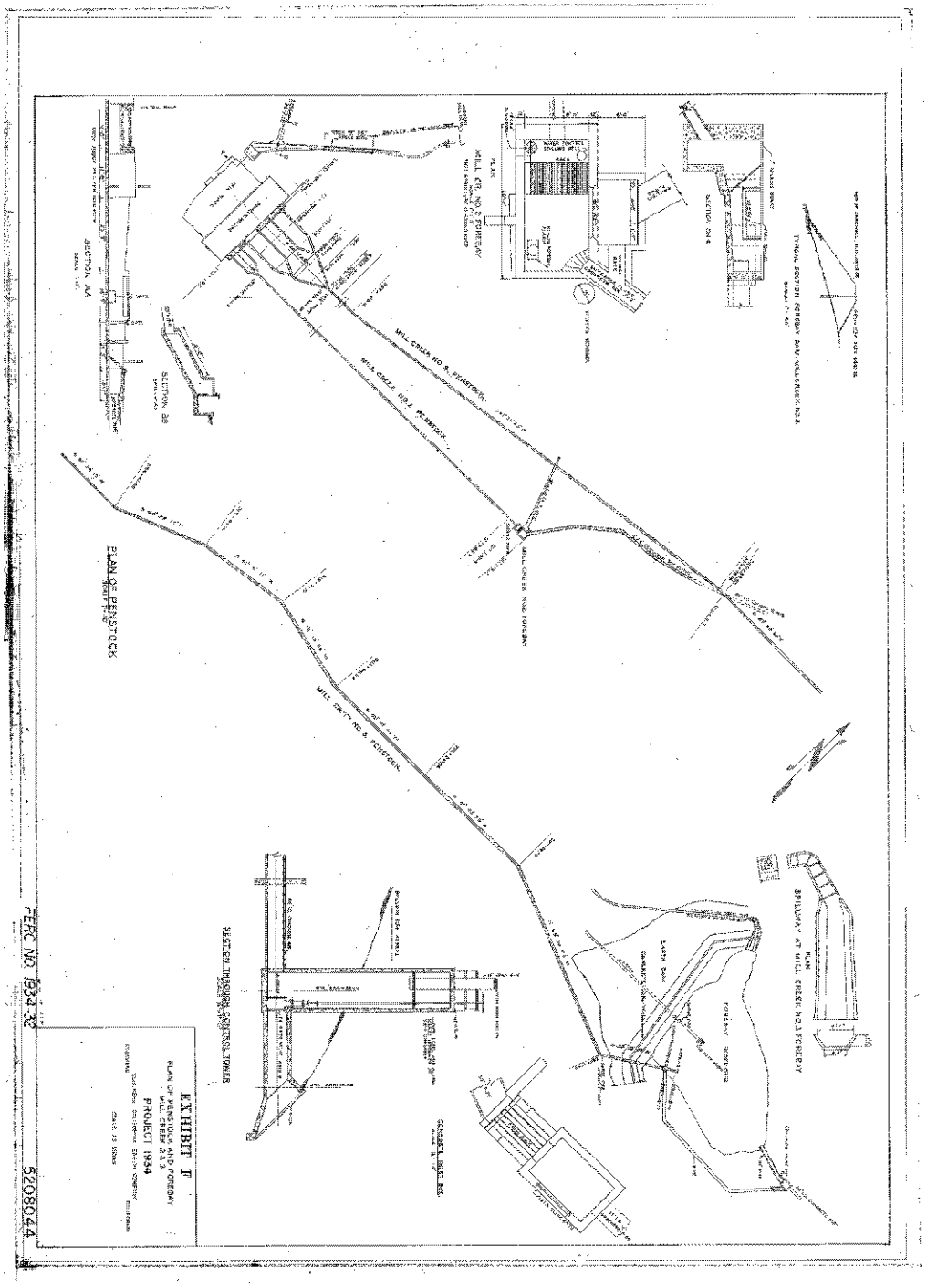
Secord, Paul R. "National Register Nomination: Southern California Edison Company, Mill Creek Hydroelectric System," National Park Service, 1985. The building has been declared a contributing element to the Mill Creek Hydroelectric Project Historic District.

Historian: Christeen Taniguchi, Senior Architectural Historian, and Nicole Collum, Architectural Historian II, Galvin Preservation Associates, 1611 S. Pacific Coast Highway, #104, Redondo Beach, CA 90277, 2008-2009.

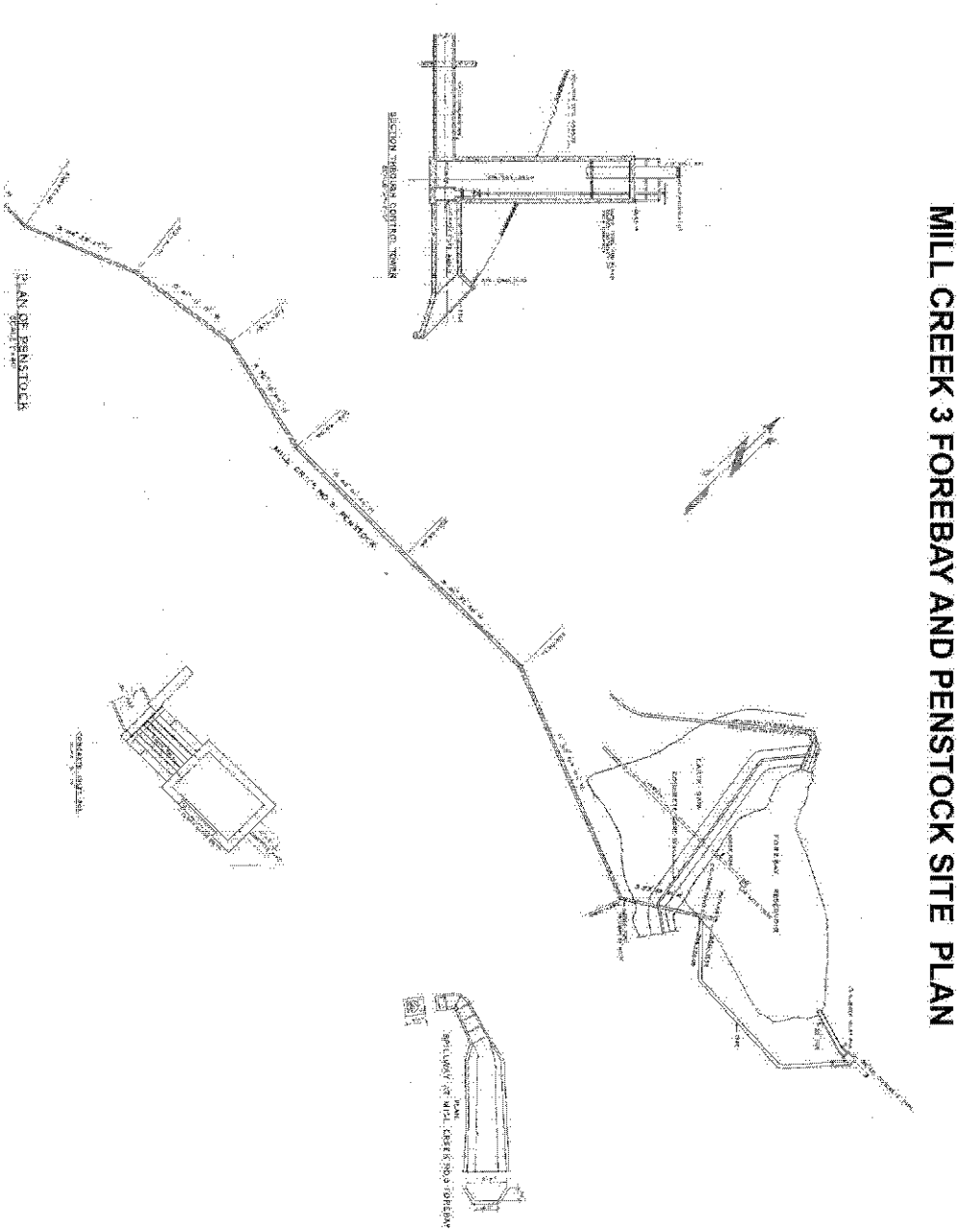
Project Information: MC 2 has not operated since 1992 when it was damaged during floods. It was not, however, decommissioned. The Southern California Edison Company, in conjunction with the San Bernardino National Forest, the agency that owns the property, proposes to formally decommission the facility. This process will include filling the sandbox and forebay with slurry, and removing the metal features. Although MC 3 is still in operation, it is also being recorded as part of this project because of the system's close association with MC 2.



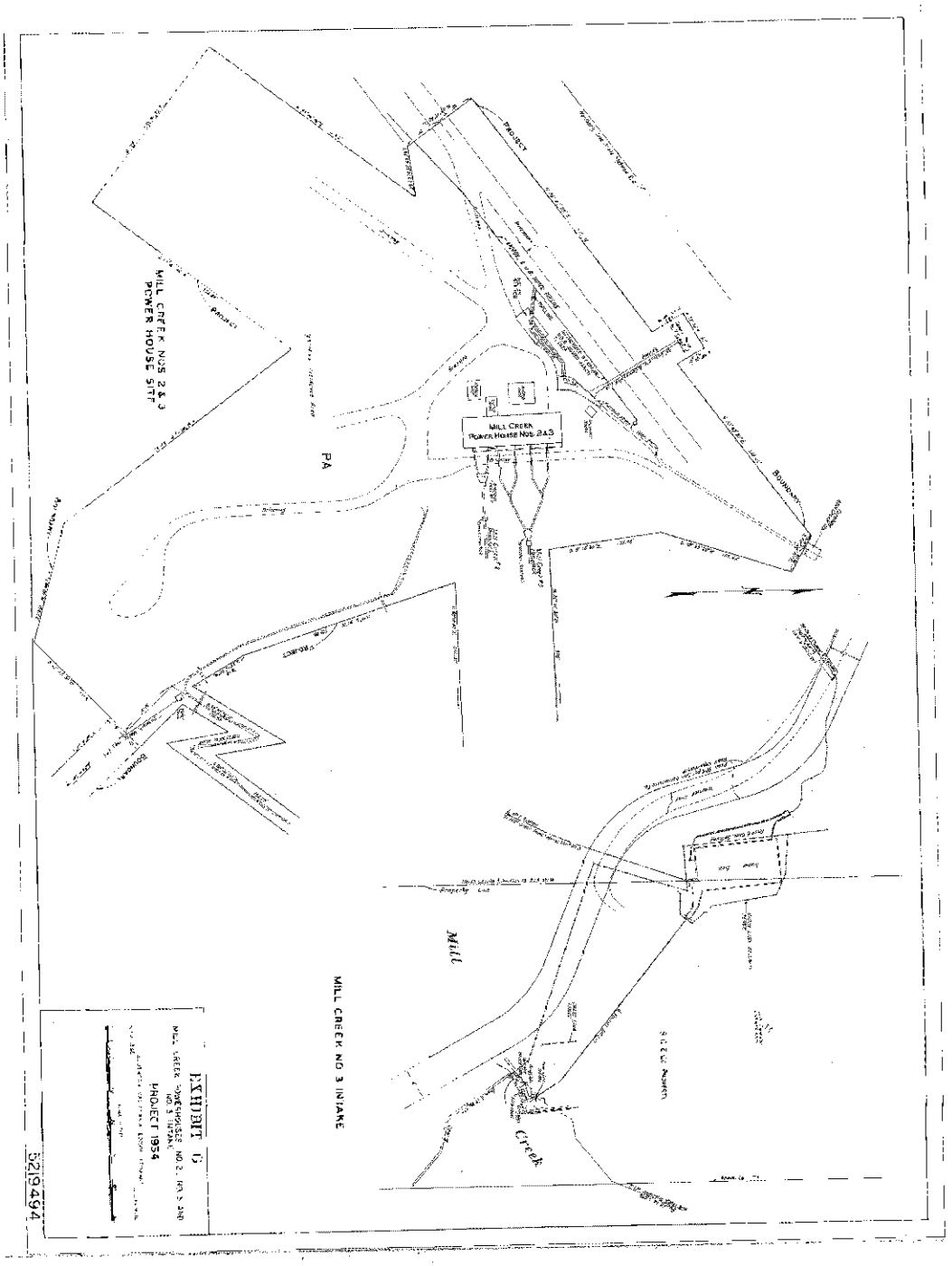
Location of Mill Creek Hydro Project Elements. (Map Courtesy of Southern California Edison)



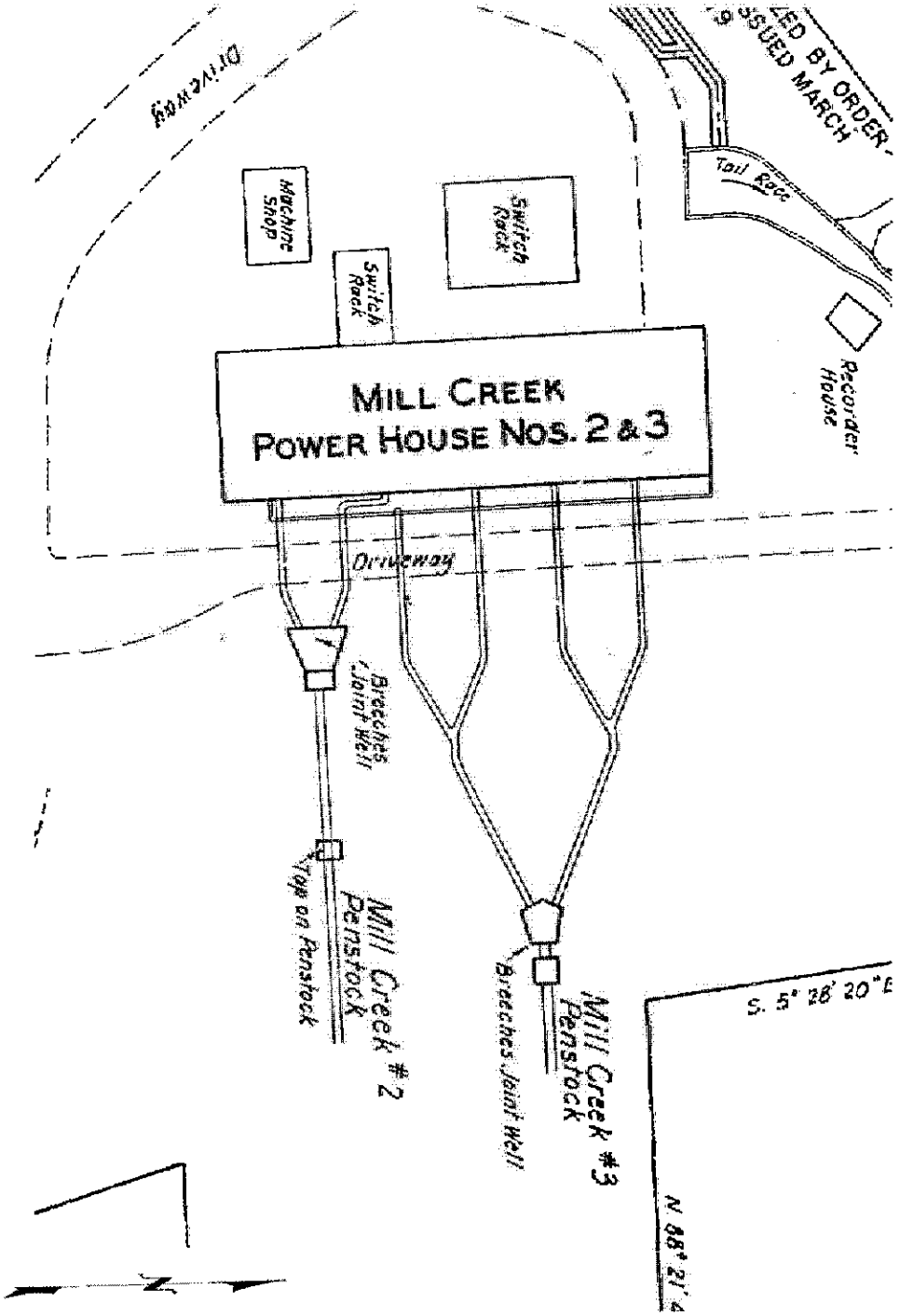
Plan of Mill Creek No. 3 Forebay and Penstock. (Drawing courtesy of Southern California Edison).



Mill Creek 3 Forebay and Penstock Site Plan (Plan Courtesy of Southern California Edison).



Mill Creek 3 Intake and the Powerhouse Site for Mill Creek 2 and 3. (Plan courtesy of Southern California Edison).



Mill Creek 2 and 3 Powerhouse and Mill Creek 3 Penstock Plan View. (Plan Courtesy of Southern California Edison).